This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. Canceled

2. Previously cancelled.

3. (Currently amended) A ~~compound~~ targeted vesicle composition according to Claim ~~2~~ 17 wherein:

X^1 is -C(=O)-NH-C(=O)-;

X^2 is -C(=O)-;

R^1 is acyl of from about ~~15~~ 16 to about 20 carbons;

R^3 is alkylene of from 1 to about 3 carbons;

R^4 is acyl of from about ~~15~~ 16 to about 20 carbons;~~ and~~

R^6 is a direct bond; and

R^7 is lower alkylene.

4. (Currently amended) A ~~compound~~ targeted vesicle composition according to Claim 3 wherein:

R^1 is acyl of from about 17 to about 19 carbons;

R^3 is methylene;

R^4 is acyl of from about 17 to about 19 carbons; and

R^7 is ethylene.

5. Previously cancelled.

6. (Currently amended) A ~~compound~~ targeted vesicle composition according to Claim ~~1~~ 17 wherein said hydrophilic polymer is selected from the group consisting of polyalkyleneoxides, polyvinyl alcohol, polyvinylpyrrolidones, polyacrylamides,

polymethacrylamides, polyphosphazenes, poly(hydroxyalkylcarboxylic acids) and polyoxazolidines.

7. (Currently amended) A ~~compound~~ targeted vesicle composition according to Claim 6 wherein said hydrophilic polymer comprises a polyalkyleneoxide.

8. (Currently amended) A ~~compound~~ targeted vesicle composition according to Claim 7 wherein said hydrophilic polymer is selected from the group consisting of polyethylene glycol and polypropylene glycol.

9. (Currently amended) A ~~compound~~ targeted vesicle composition according to Claim 8 wherein said hydrophilic polymer is polyethylene glycol.

10. (Currently amended) A ~~compound~~ targeted vesicle composition according to Claim 8 wherein said hydrophilic polymer is PEG3400.

11. (Currently amended) A ~~compound~~ targeted vesicle composition according to Claim ~~1~~ 17 wherein said targeting ligand comprises a peptide of the formula:

$$(Xaa)_n–Yaa–Gly–Asp–(Zaa)_m$$

wherein:

m and n are independently an integer of from 1 to about 100;

Xaa and Zaa are independently selected from the group consisting of natural amino acids and synthetic amino acids;

Yaa is selected from Arginine, Homoarginine, and Lysine-N-acetimidate; and

with the proviso that when Xaa and Zaa are sulfur containing amino acids, Xaa and Zaa may be linked together via a disulfide linkage.

12. (Currently amended, but withdrawn) A ~~compound~~ targeted vesicle composition according to Claim 11, wherein:

Xaa is Glycine;

Yaa is Arginine;

Zaa is Serine;

n is 1, 2 or 3; and

m is 1.

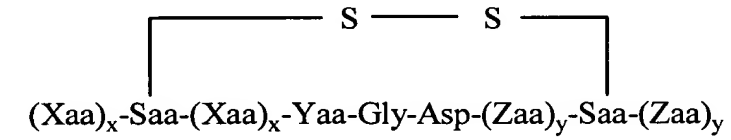
13. (Currently amended, but withdrawn) A ~~compound~~ targeted vesicle composition according to Claim 12, wherein:

n is 3.

14. (Currently amended) A ~~compound~~ targeted vesicle composition according to Claim 11, wherein:

Xaa and Zaa comprise an amino acid independently selected from sulfur containing amino acids.

15. (Currently amended) A ~~compound~~ targeted vesicle composition according to Claim ~~1~~ 17 wherein said targeting ligand comprises a peptide of the following formula:



wherein:

each x and y is independently an integer of from 0 to about 50;

each Saa is selected from the group consisting of natural and synthetic sulfur containing amino acids, wherein sulfur atoms in said sulfur containing amino acids are linked together by a disulfide bond, as represented by S—S;

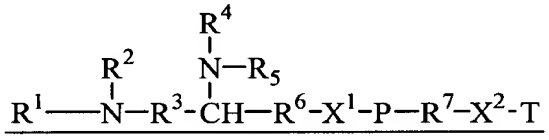
each Xaa and Zaa are independently selected from the group consisting of natural amino acids and synthetic amino acids; and

Yaa is selected from Arginine, Homoarginine, and Lysine-N-acetimidate.

16. (Currently amended) A ~~compound~~ targeted vesicle composition according to Claim 15 wherein:

each Saa is independently selected from the group consisting of D-Cysteine, L- Cysteine, D-Penicillamine and L-Penicillamine.

17. (Currently amended) A targeted vesicle composition for therapeutic or diagnostic use *in vivo* comprising, in an aqueous carrier, ~~lipid, protein or polymer~~ gas filled ~~vesicles~~ liposomes comprising a phosphatidylcholine selected from the group consisting of dioleoylphosphatidylcholine, dimyristoylphosphatidylcholine, dipalmitoylphosphatidylcholine and distearoylphosphatidylcholine, wherein said ~~vesicles~~ liposomes further comprise a compound ~~according to Claim 1~~ having the formula



(IV)

wherein:

X^1 and X^2 are independently a direct bond or a linking atom or group selected from the group consisting of $-C(=X^3)-$, $-C(=X^3)-N(R^8)-$, and $-C(=X^3)-N(R^8)-C(=X^3)-$;

X^3 is -O- or -S-;

R^1 is acyl of from about 16 to about 23 carbons;

R^2 is hydrogen or lower alkyl;

R^3 is alkylene of from 1 to about 10 carbons;

R^4 is acyl of from about 16 to about 23 carbons;

R^5 is hydrogen or lower alkyl;

R^6 is a direct bond;

R^7 is a direct bond or alkylene of from 1 to about 10 carbons;

R^8 is hydrogen or lower alkyl;

P is a hydrophilic polymer; and

T is a targeting ligand which targets cells or receptors selected from the group consisting of myocardial cells, endothelial cells, epithelial cells, tumor cells and the glycoprotein GPIIbIIIa receptor.

18. Canceled

19. Canceled

20. Canceled

21. Canceled

22. (Currently amended) A targeted vesicle composition according to Claim ~~21~~ 17 wherein said phosphatidylcholine comprises dipalmitoylphosphatidylcholine.

23. (Currently amended) A targeted vesicle composition according to Claim ~~20~~ 17 further comprising a ~~wherein said~~ phosphatidylethanolamine ~~is~~ selected from the group consisting of dipalmitoyl-phosphatidylethanolamine, dioleoylphosphatidylethanolamine, N-succinyldioleoyl-phosphatidylethanolamine and 1-hexadecyl-2-palmitoylglycerophosphoethanolamine.

24. (Original) A targeted vesicle composition according to Claim 23 wherein said phosphatidylethanolamine comprises dipalmitoylphosphatidylethanolamine.

25. (Currently amended) A targeted vesicle composition according to Claim ~~20~~ 17 further comprising ~~wherein said phosphatidic acid comprises~~ dipalmitoylphosphatidic acid.

26. (Original) A targeted vesicle composition according to Claim 17, wherein said vesicles comprise a gas selected from the group consisting of perfluorocarbons and sulfur hexafluoride.

27. (Original) A targeted vesicle composition according to Claim 26 wherein said perfluorocarbon gas is selected from the group consisting of perfluoromethane, perfluoroethane, perfluoropropane, perfluorobutane and perfluorocyclobutane.

28. (Original) A targeted vesicle composition according to Claim 27 wherein said perfluorocarbon gas is selected from the group consisting of perfluoropropane and perfluorobutane.

29. (Original) A targeted vesicle composition according to Claim 28 wherein said perfluorocarbon gas comprises perfluorobutane.

30. (Original) A targeted vesicle composition according to Claim 17 wherein said gas is derived, at least in part, from a gaseous precursor.

31. (Original) A targeted vesicle composition according to Claim 30 wherein said gaseous precursor has a boiling point of greater than about 37°C.

32. (Original) A targeted vesicle composition according to Claim 31 wherein said gaseous precursor comprises a perfluorocarbon.

33. (Original) A targeted vesicle composition according to Claim 32 wherein said perfluorocarbon is selected from the group consisting of perfluoropentane and perfluorohexane.

34. (Original) A targeted vesicle composition according to Claim 17 wherein said vesicles further comprise a bioactive agent that is different from said gas and said compound.

35. (Original) A targeted vesicle composition according to Claim 34 wherein said bioactive agent comprises a therapeutic agent selected from the group consisting

of genetic material, dihydroergotamine, heparin sulfate, tissue plasminogen activator, streptokinase, urokinase, hirudin, and mixtures thereof.

36-53. Previously cancelled.

54. (Currently amended) A ~~compound~~ targeted vesicle composition according to Claim ~~1~~ 17, wherein:

X^1 is -C(=X^3)-N(R^8)-;

X^2 is C(=X^3);

X^3 is O;

R^1 is acyl of 18 carbons;

R^2 is H;

R^3 is ethylene;

R^4 is acyl of 18 carbons;

R^5 is H;

R^6 is a direct bond;

R^7 is ethylene;

R^8 is H;

P is PEG-3400; and

T comprises a peptide having the sequence CRGDC, wherein the two cysteines are linked together via a disulfide linkage.

55. (Canceled)

56. (Canceled)

57. (Canceled)

58. (Canceled)

59. (Canceled)

60. (Currently amended) A targeted vesicle composition according to Claim ~~55~~ 54, further comprising urokinase.

61. (Currently amended) A ~~compound~~ targeted vesicle composition according to Claim 4 wherein:

R^1 and R^4 are acyl of about 18 carbons.

62. (Canceled)

63. (Currently amended) A ~~compound~~ targeted vesicle composition according to Claim 4 wherein:

R^1 is an acyl of about 18 carbons.

64. (Newly added) A targeted vesicle composition according to Claim 17, wherein said targeting ligand T is a peptide having from about 3 to about 20 amino acids.

65. (Newly added) A targeted vesicle composition according to Claim 64, wherein said peptide is cyclized by a linkage selected from the group consisting of sidechain-

to-sidechain covalent linkages, end-to-sidechain covalent linkages, and end-to-end covalent linkages.